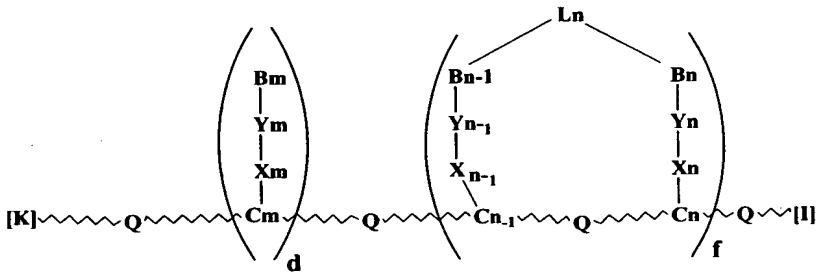
In the Claims:

Please amend the claims as follows:

1-9. canceled

10. (original) A compound having the formula:



wherein:

m and n are each independently an integer;,

$m \neq n$;

$m \neq n-1$;

d is an integer which equals to or greater than 0;

f is an integer greater than 0;

L is a linker chain;

each of Bm, Bn-1 and Bn is a chemical functionality group independently selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group;

each of Ym, Yn-1 and Yn is a first linker group;

each of Xm, Xn-1 and Xn is a second linker group;

Cm, Cn-1 and Cn are chiral carbon atoms;

Q is a backbone bearing said Cm, Cn-1 and Cn chiral carbon atoms; and

[K] and [I] are optional first and second exoconjugates.

11. (original) The compound of claim 10, wherein each of said Ym-Xm, Yn-1-Xn-1 and Yn-Xn linker groups is a single bond.

12. (original) The compound of claim 10, wherein each of said Ym, Yn-1 and Yn first linker groups is independently selected from the group consisting of an alkyl group, a phosphate group, a (C2-C4) alkylene chain, a (C2-C4) substituted alkylene chain and a single bond.

13. (original) The compound of claim 10, wherein each of said Ym, Yn-1 and Yn first linker groups is independently selected from the group consisting of a methylene group and a C-alkanoyl group.

14. (original) The compound of claim 10, wherein each of said Xm, Xn-1 and Xn second linker groups is independently selected from the group consisting of a methylene group, an alkyl group, an amino group, an amido group, a sulfur atom, an oxygen atom, a selenium atom, a C-alkanoyl group, a phosphate derivative group, a carbonyl group and a single bond.

15. (original) The compound of claim 10, wherein m percents of said chiral carbons are in an S configuration, wherein m is selected from the group consisting of 90-95 %, 96-98 %, about 99 % and greater than 99 %.

16. (original) The compound of claim 10, wherein [K] and [I] are each independently a polyethylene glycol moiety.

17. (currently amended) The compound of claim 10, wherein said Q backbone comprises a polyether and/or a polyether derivative ~~thereof~~, said polyether derivative being selected from the group consisting of poly(ether-thioether), poly(ether-sulfone) and poly(ether-sulfoxide).

18. (original) The compound of claim 17, wherein said polyether comprises poly(ethylene glycol).

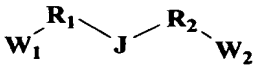
19. canceled.

20. (original) The compound of claim 10, wherein said backbone is selected from the group consisting of a thiophosphonate DNA backbone, a phosphoramidate backbone, a morpholino phosphoramidate backbone and a methyl phosphonate backbone.

21. (original) The compound of claim 10, wherein said Cm, Cn-1 and Cn chiral carbon atoms are separated from one another in said Q backbone by from four to six intervening atoms.

22. (original) The compound of claim 10, wherein said L linker chain comprises between four and fourteen atoms.

23. (original) The compound of claim 22, wherein said L linker chain has a formula:



wherein:

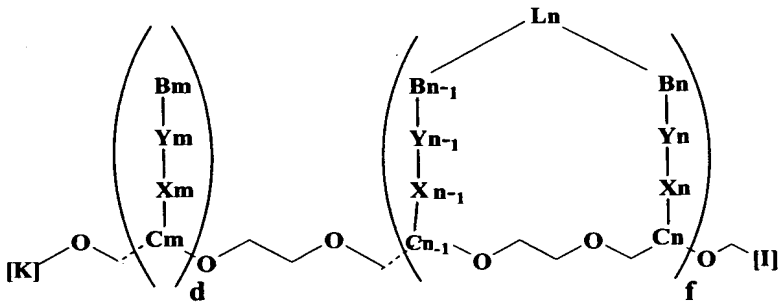
R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

24. (original) The compound of claim 10, further comprising at least one reporter molecule linked to said backbone.

25. (original) A compound having a formula:



wherein:

m and n are each independently an integer;

m≠n;

m≠n-1;

d is an integer which equals to or greater than 0;

f is an integer greater than 0;

L is a linker chain;

each of Bm, Bn-1 and Bn is a chemical functionality group independently selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group;

each of Ym, Yn-1 and Yn is a first linker group;

each of Xm, Xn-1 and Xn is a second linker group;

Cm, Cn-1 and Cn are chiral carbon atoms; and

[K] and [I] are optional first and a second exoconjugates.

26. (original) The compound of claim 25, wherein each of said Ym-Xm, Yn-1-Xn-1 and Yn-Xn linker groups is a single bond.

27. (original) The compound of claim 25, wherein each of said Ym, Yn-1 and Yn first linker groups is independently selected from the group consisting of an alkyl group, a phosphate group, a (C2-C4) alkylene chain, a (C2-C4) substituted alkylene chain and a single bond.

28. (original) The compound of claim 25, wherein each of said Ym, Yn-1 and Yn first linker groups is independently selected from the group consisting of a methylene group and a C-alkanoyl group.

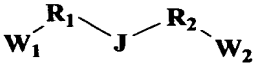
29. (original) The compound of claim 25, wherein each of said Xm, Xn-1 and Xn second linker groups is independently selected from the group consisting of a methylene group, an alkyl group, an amino group, an amido group, a sulfur atom, an oxygen atom, a selenium atom, a C-alkanoyl group, a phosphate derivative group, a carbonyl group and a single bond.

30. (original) The compound of claim 25, wherein m percents of said chiral carbons are in an S configuration, wherein m is selected from the group consisting of 90-95 %, 96-98 %, about 99 % and greater than 99 %.

31. (original) The compound of claim 25, wherein [K] and [I] are each a polyethylene glycol moiety.

32. (original) The compound of claim 25, wherein each of said L linker chain comprises between four and fourteen atoms.

33. (original) The compound of claim 32, wherein each of said L linker chain has a formula:

wherein: 

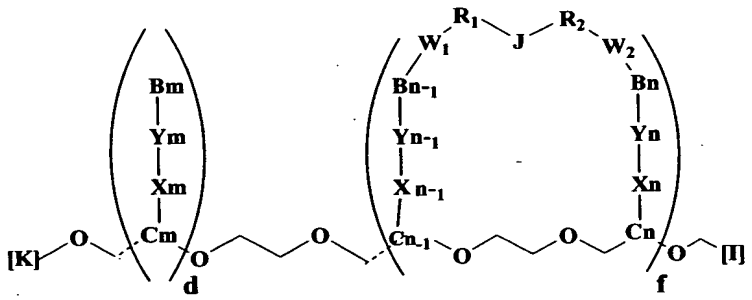
R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

34. (original) The compound of claim 25, further comprising at least one reporter molecule linked thereto.

35. (original) The compound of claim 25, having the formula:



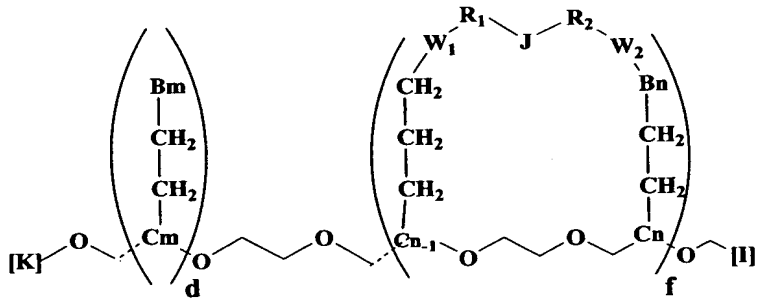
wherein:

R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

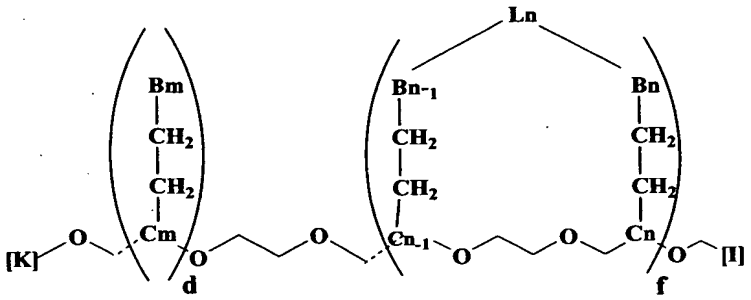
W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

36. (original) The compound of claim 35, having the formula:

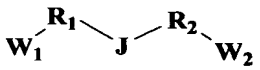


37. (original) The compound of claim 25, having the formula:



38. (original) The compound of claim 37, wherein said L linker chain comprises between four and fourteen atoms.

39. (original) The compound of claim 38, wherein said L linker chains has a formula:



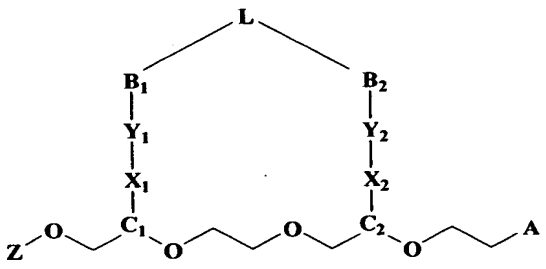
wherein:

R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

40. (withdrawn) A compound having a formula:



wherein:

L is a linker chain;

each of B1 and B2 is a chemical functionality group selected from the group consisting of a protected or unprotected naturally occurring nucleobase and a protected or unprotected nucleobase binding group;

each of Y1 and Y2 is a first linker group;

each of X1 and X2 is a second linker group;

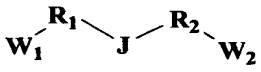
C1 and C2 are chiral carbon atoms;

Z is a first protecting group; and

A is a leaving group.

41. (withdrawn) The compound of claim 40, wherein said L linker chain comprises between four and fourteen atoms.

42. (withdrawn) The compound of claim 41, wherein said L linker chain has a formula:



wherein:

R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

43. (withdrawn) The compound of claim 40, further comprising at least one reporter molecule linked thereto.

44. (withdrawn) The compound of claim 40, wherein each of said Y1-X1 and Y2-X2 linker groups is a single bond.

45. (withdrawn) The compound of claim 40, wherein each of said Y1 and Y2 first linker groups is independently selected from the group consisting of an alkyl group, a phosphate group, a (C2-C4) alkylene chain, a (C2-C4) substituted alkylene chain and a single bond.

46. (withdrawn) The compound of claim 40, wherein each of said Y1 and Y2 first linker groups is independently selected from the group consisting of a methylene group and a C-alkanoyl group.

47. (withdrawn) The compound of claim 40, wherein each of said X1 and X2 second linker groups is independently selected from the group consisting of a methylene group, an alkyl group, an amino group, an amido group, a sulfur atom, an oxygen atom, a selenium atom, a C-alkanoyl group, a phosphate derivative group, a carbonyl group and a single bond

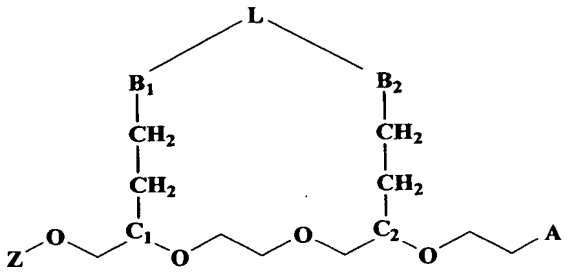
48. (withdrawn) The compound of claim 40, wherein, should at least one of said nucleobase include an amino group, said amino group is protected by a second protecting group P.

49. (withdrawn) The compound of claim 40, wherein said Z protecting group is selected from the group consisting of a dimethoxytrityl group, a trityl group, a monomethoxytrityl group, a silyl group and a group that is removable under acidic or basic conditions.

50. (withdrawn) The compound of claim 40, wherein said A leaving group is selected from the group consisting of a halide group, a sulfonate group, an ammonium derivative and a radical moiety that could be replaced by SN1 or SN2 mechanisms.

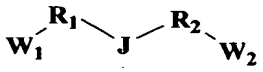
51. (withdrawn) The compound of claim 48, wherein said second protecting group P is selected from the group consisting of a methylbenzylether group, a methoxybenzylether group, a benzamido group, an isobutyramido group, a t-butoxycarbonyl group, a benzyloxymethyl, a fluorenylmethyloxycarbonyl group, methyl pyrrolidone and an acid labile group which is not cleaved by reagents that cleave said Z protecting group.

52. (withdrawn) The compound of claim 40, having the formula:



53. (withdrawn) The compound of claim 52, wherein said L linker group comprises between four and fourteen atoms.

54. (withdrawn) The compound of claim 53, wherein said L linker group has a formula:



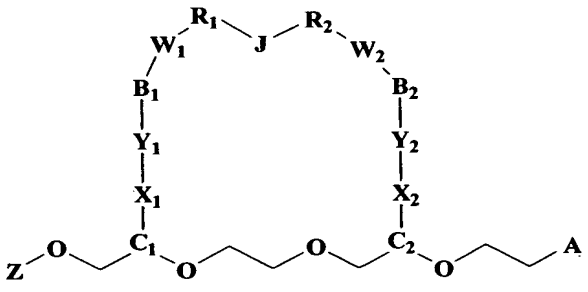
wherein:

R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

55. (withdrawn) The compound of claim 40, having a formula:



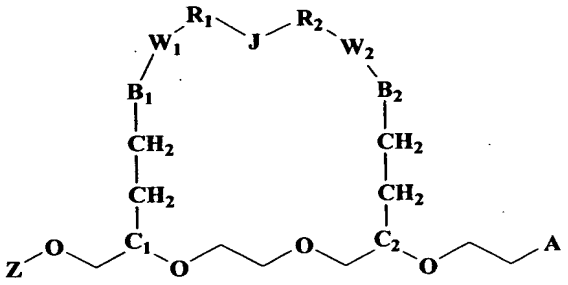
wherein:

R1 and R2 are each independently selected from the group consisting of a methylene group a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

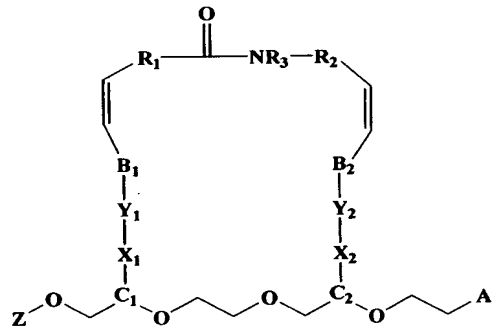
W1 and W2 are each independently selected from the group consisting of a single bond, a double bond and a triple bond; and

J is selected from the group consisting of alkyl, aryl, amide, amine, ether, ester, carbonyl, thiocarbonyl, phosphate, carbamate, thioether, disulfide, sulfone and sulfoxide.

56. (withdrawn) The compound of claim 55, having the formula:



57. (withdrawn) The compound of claim 40, having the formula:

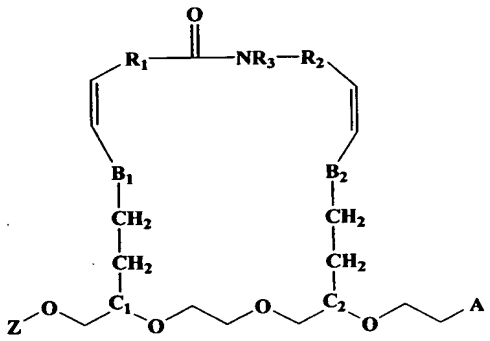


wherein:

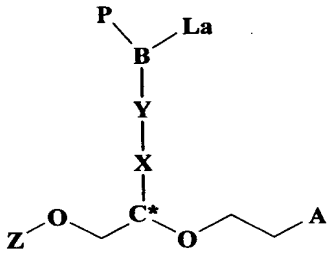
R1 and R2 are each independently selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain; and

R3 is selected from the group consisting of hydrogen, methyl and alkyl.

58. (withdrawn) The compound of claim 57, having a formula:



59. (withdrawn) A compound having a formula:



wherein:

B is a chemical functionality group selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group;

Y is a first linker group;

X is a second linker group;

C* is a chiral carbon atom;

Z is a first protecting group;

P is a second protecting group;

A is a leaving group; and

La is a linker arm.

60. (withdrawn) The compound of claim 59, wherein said L linker arm has a formula:

Wa—Ra—Ja

wherein:

Ra is selected from the group consisting of a methylene group, a substituted or unsubstituted saturated alkylene chain and a substituted or unsubstituted unsaturated alkylene chain;

Wa is selected from the group consisting of a single bond, a double bond and a triple bond; and

Ja is a chemically reactive group capable of participating in a condensation reaction.

61. (withdrawn) The compound of claim 60, wherein said Ja chemically reactive group is selected from the group consisting of an electrophilic group and a nucleophilic group.

62. (withdrawn) The compound of claim 60, wherein said Ra is a C2-C4 alkylene chain, said Wa is a double bond and said Ja is selected from the group consisting of carboxylic acid, ester, acyl halide, amine, hydroxyl, alkoxyl, aryloxyl, thioester, thiol, thioalkyl and amide.

63. (withdrawn) The compound of claim 59, wherein said Y-X linker group is a single bond.

64. (withdrawn) The compound of claim 59, wherein said Y first linker group is selected from the group consisting of an alkyl group, a phosphate group, a (C2-C4) alkylene chain, a (C2-C4) substituted alkylene chain and a single bond.

65. (withdrawn) The compound of claim 59, wherein said Y first linker group is selected from the group consisting of a methylene group and a C-alkanoyl group.

66. (withdrawn) The compound of claim 59, wherein said X second linker group is selected from the group consisting of a methylene group, an alkyl group, an amino group, an amido group, a sulfur atom, an oxygen atom, a selenium atom, a C-alkanoyl group, a phosphate derivative group, a carbonyl group and a single bond

67. (withdrawn) The compound of claim 59, wherein said Z protecting group is selected from the group consisting of a dimethoxytrityl group, a trityl group, a monomethoxytrityl group, a silyl group and a group that is removable under acidic or basic conditions.

68. (withdrawn) The compound of claim 59, wherein said A leaving group is selected from the group consisting of a halide group, a sulfonate group, an ammonium derivative and a radical moiety that could be replaced by SN1 or SN2 mechanisms.

69. (withdrawn) The compound of claim 59, wherein said P second protecting group is selected from the group consisting of a methylbenzylether group, a benzamido group, an isobutyramido group, a t-butoxycarbonyl group, a benzyloxymethyl, a fluorenylmethyloxycarbonyl group, a methyl pyrrolidone and an acid labile group which is not cleaved by reagents that cleave said Z protecting group.

70. (withdrawn) The compound of claim 59, further comprising at least one reporter molecule linked thereto.

71. (withdrawn) A process of preparing the compound of claim 1, the process comprising:

(a) obtaining monomers, each of said monomers including at least one chiral carbon atom having a functionality group linked thereto, said functionality group being selected from the group consisting of a protected or unprotected naturally occurring nucleobase and a protected or unprotected nucleobase binding group;

(b) obtaining dimers, each of said dimers including at least two chiral carbon atoms, each of said chiral carbon atoms having a functionality group linked thereto, said functionality group being selected from the group consisting of a protected or unprotected naturally occurring nucleobase and a protected or unprotected nucleobase binding group, said dimers further including a linker chain connecting said functionality groups; and

(c) condensing said monomers and said dimers therebetween and one with another, thereby obtaining a polymer of condensed said monomers and said dimers.

72. (withdrawn) The process of claim 71, wherein at least one of said nucleobases is a protected nucleobase, the process further comprising:

(d) deprotecting said at least one protected nucleobase.

73. (withdrawn) A process of preparing the compound of claim 1, the process comprising:

(a) obtaining monomers, each of said monomers including at least one chiral carbon atom having a functionality group linked thereto, said functionality group being selected from the group consisting of a protected or unprotected naturally occurring nucleobase and a protected or unprotected nucleobase binding group;

(b) obtaining dimers, each of said dimers including at least two chiral carbon atoms, each of said chiral carbon atoms having a functionality group linked thereto, said functionality group being selected from the group consisting of a protected or unprotected naturally occurring nucleobase and a protected or unprotected nucleobase binding group, said dimers further including a linker chain connecting said functionality groups; and

(c) attaching a first monomer of said monomers or a first dimer of said dimers to a solid support; and

(d) sequentially condensing said monomers and said dimers in a predetermined sequence to said first monomer or said first dimer, thereby obtaining a polymer of condensed said monomers and said dimers.

74. (withdrawn) The process of claim 73, wherein at least one of said nucleobases is a protected nucleobase, the process further comprising:

(e) deprotecting said at least one protected nucleobase.

75. (withdrawn) A process of preparing the compound of claim 2, the process comprising:

(a) obtaining monomers, each of said monomers having an ether moiety, said ether moiety including at least one chiral carbon atom having a functionality group linked thereto, said functionality group being selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group;

(b) obtaining dimers, each of said dimers having two ether moieties, each of said ether moieties including at least one chiral carbon atoms having a functionality group linked thereto, said functionality group being selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group, said dimers further including a linker chain connecting said functionality groups; and

(c) condensing said monomers and said dimers therebetween and one with another, thereby obtaining a polymer of condensed said monomers and said dimers.

76. (withdrawn) The process of claim 75, wherein at least one of said nucleobases is a protected nucleobase, the process further comprising:

(d) deprotecting said at least one protected nucleobase.

77. (withdrawn) A process of preparing the compound of claim 2, the process comprising:

(a) obtaining monomers, each of said monomers including at least one chiral carbon atom having a functionality group linked thereto, said functionality group being selected from the group

consisting of a naturally occurring nucleobase and a nucleobase binding group;

(b) obtaining dimers, each of said dimers including at least two chiral carbon atoms, each of said chiral carbon atoms having a functionality group linked thereto, said functionality group being selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group, said dimers further including a linker chain connecting said functionality groups; and

(c) attaching a first monomer of said monomers or a first dimer of said dimers to a solid support; and

(c) sequentially condensing said monomers and said dimers in a predetermined sequence to said first monomer or said first dimer, thereby obtaining a polymer of condensed said monomers and said dimers.

78. (withdrawn) The process of claim 77, wherein at least one of said nucleobases is a protected nucleobase, the process further comprising:

(d) deprotecting said at least one protected nucleobase.

79. (withdrawn) A process of preparing the compound of claim 40, the process comprising:

(a) obtaining a first ethylene glycol moiety including a first chiral carbon atom, said first chiral carbon atom having a first functionality group linked thereto, said first functionality group being selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group and bearing a first linker arm terminating with a first chemically

reactive group, said first chiral carbon atom further having a protecting group Z attached thereto;

(b) condensing to said first ethylene glycol moiety a second ethylene glycol moiety including a second chiral carbon atom, thereby obtaining a diethylene glycol moiety including said first chiral carbon atom having said first functionality group and said protecting group linked thereto and a second chiral carbon atom;

(c) reacting said diethylene glycol moiety with a second functionality group, said second functionality group being selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group and bearing a second linker arm terminating with a second chemically reactive group, thereby obtaining a diethylene glycol moiety including said first chiral carbon atom having said first functionality group linked thereto and said second chiral carbon atom having said second functionality group linked thereto;

(d) condensing said first linker arm and said second linker arm, thereby obtaining a diethylene glycol moiety including said first and said second chiral carbon atoms having said first and said second functionality groups linked thereto, said first and said second functionality groups being covalently attached therebetween via a linker chain; and

(e) converting said diethylene glycol moiety resulting of (d), so as to obtain said diethylene glycol moiety having a leaving group A attached to said second chiral carbon atom.

80. (withdrawn) A process of sequence specific hybridization comprising contacting a double stranded polynucleotide with the compound of claim 1, such that said compound binds in a sequence specific manner to one strand of said polynucleotide, thereby displacing the other strand.

81. (withdrawn) A process of sequence specific hybridization comprising contacting a single-stranded polynucleotide with the compound of claim 1, such that said compound binds in a sequence specific manner to said polynucleotide.

82. (withdrawn) A process of modulating the expression of a gene in an organism, the process comprising administering to said organism the compound of claim 1, such that said compound binds in a sequence specific manner DNA or RNA deriving from said gene.

83. (withdrawn) The process of claim 82, wherein said modulation includes inhibiting transcription of said gene.

84. (withdrawn) The process of claim 82, wherein said modulation includes inhibiting replication of said gene.

85. (withdrawn) The process of claim 82, wherein said modulation includes inhibiting translation of said RNA of said gene.

86. (withdrawn) A process of treating a condition associated with undesired protein production in an organism, the process comprising contacting said organism with an effective amount of the compound of

claim 1, said compound specifically binds with DNA or RNA deriving from a gene controlling said protein production.

87. (withdrawn) A process of inducing degradation of DNA or RNA in cells of an organism, the process comprising administering to said organism the compound of claim 1, said compound specifically binds to said DNA or RNA.

88. (withdrawn) A process of killing cells or viruses, the process comprising contacting said cells or viruses with the compound of claim 1, said compound specifically binds to a portion of the genome or to RNA derived therefrom of said cells or viruses.

89. canceled

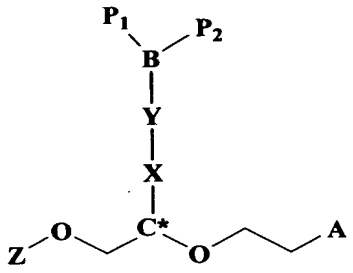
90. (original) A pharmaceutical composition comprising, as an active ingredient, the compound of claim 10, and a pharmaceutically acceptable carrier.

91. (original) A pharmaceutical composition comprising, as an active ingredient, the compound of claim 25, and a pharmaceutically acceptable carrier.

92. (original) A pharmaceutical composition comprising, as an active ingredient, the compound of claim 35, and a pharmaceutically acceptable carrier.

93. (original) A pharmaceutical composition comprising, as an active ingredient, the compound of claim 37, and a pharmaceutically acceptable carrier.

94. (withdrawn) A compound having the formula:



wherein

B is a chemical functionality group selected from the group consisting of a naturally occurring nucleobase and a nucleobase binding group;

Y is a first linker group;

X is a second linker group;

C* is a chiral carbon atom;

Z is a first protecting group;

each of P1 and P2 is a second protecting group; and

A is a leaving group.

95. (withdrawn) The compound of claim 94, wherein said Y-X linker group is a single bond.

96. (withdrawn) The compound of claim 94, wherein said Y first linker group is selected from the group consisting of an alkyl group, a

phosphate group, a (C2-C4) alkylene chain, a (C2-C4) substituted alkylene chain and a single bond.

97. (withdrawn) The compound of claim 94, wherein said Y first linker group is selected from the group consisting of a methylene group and a C-alkanoyl group.

98. (withdrawn) The compound of claim 94, wherein said X second linker group is selected from the group consisting of a methylene group, an alkyl group, an amino group, an amido group, a sulfur atom, an oxygen atom, a selenium atom, a C-alkanoyl group, a phosphate derivative group, a carbonyl group and a single bond

99. (withdrawn) The compound of claim 94, wherein said Z protecting group is selected from the group consisting of a dimethoxytrityl group, a trityl group, a monomethoxytrityl group, a silyl group and a group that is removable under acidic or basic conditions.

100. (withdrawn) The compound of claim 94, wherein said A leaving group is selected from the group consisting of a halide group, a sulfonate group, an ammonium derivative and a radical moiety that could be replaced by SN1 or SN2 mechanisms.

101. (withdrawn) The compound of claim 94, wherein each of said P1 and P2 second protecting group is independently selected from the group consisting of a methylbenzylether group, a methoxybenzylether group, a benzamido group, an isobutyramido group, a t-butoxycarbonyl group, a benzyloxymethyl, a fluorenylmethyloxycarbonyl group, a methyl

pyrrolidone and an acid labile group which is not cleaved by reagents that cleave said Z protecting group.

102. (withdrawn) The compound of claim 94, further comprising at least one reporter molecule linked thereto.